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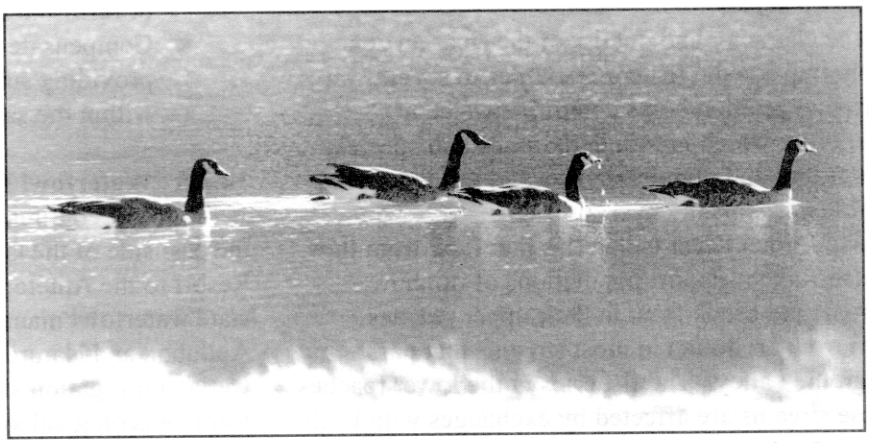
FISHERIES AND WATER-RELATED WILDLIFE

Wildlife is still common along rivers, creeks, wetlands, wooded areas, abandoned fields and parks within many areas of the Jordan River Basin. It is one of the valued amenities of living along the Wasatch Front. In a recent survey, more than 95 percent of Salt Lake City residents said they enjoyed seeing wildlife in their neighborhoods.

14.1 Introduction

This section describes the Jordan River Basin fish and wildlife resources, discusses existing and potential needs, and presents recommendations. It also describes associated problems and presents alternatives to improve wildlife resources. Preserving, restoring and creating wildlife habitat in the Jordan River Basin can provide benefits to all residents. Immediate and accessible green and growing habitat provides a welcome relief to the pavement and buildings of the urban environment. Habitat corridors along rivers, streams and canals offer coherence to the county landscape, providing a structure of open spaces that young and old alike can use for education as well as recreation. Property values near open spaces increase as urbanization consumes more land. Wildlife habitat also provides environmental benefits including cleaner air and water, reduced soil erosion, and the protection of natural plant and animal communities. In summary, preservation of urban wildlife areas can make a significant contribution toward the development of healthy, enjoyable and comfortable cities and towns.



Geese on the Jordan River

14.2 Setting

Before settlement of the Salt Lake Valley, the Jordan River meandered from its entry at the Jordan Narrows across a broad floodplain to the Great Salt Lake. A forest of cottonwood trees traced its path along the valley floor. Since that time, the forest has been cut, the river channeled, the water polluted and much of the wildlife displaced. Even though the Jordan River has been abused, it remains the backbone of the Salt Lake Valley's wildlife habitat resource. Recent efforts to preserve wetlands and riparian areas and improve water quality bode well for wildlife. The Jordan River delta, a mosaic of marshes, ponds, wet meadows, and uplands along with privately and state developed wetlands, is a significant habitat resource.

Economic projections suggest that substantial growth will continue in the Jordan River Basin well into the 21st century. Development has recently spread into areas of high-value wildlife habitat depleting the limited resource. Through responsible community planning with consideration given to

wildlife habitat as an important part of the urban environment, loss of habitat need not be a legacy of future development. Wildlife is still common along rivers and steams and in wetlands, woodlots, abandoned fields, parks and throughout residential neighborhoods within many Wasatch Front communities. Through proper planning and establishment of a system of wildlife areas throughout the basin, residents can capitalize on the unique wildlife resources and preserve the diversity of plants and wildlife.

The Jordan River Basin has about 28,100 acres of wetlands/riparian areas and about 15,000 acres of open water (includes the Great Salt Lake). See Table 3-2.

14.2.1 Fisheries

The character and quality of the riparian zone directly impacts the fishery resources in several ways. Riparian vegetation helps determine water temperature, which in turn determines fish species, composition, and population size and influences the available nutrients.

The Jordan River tributaries that flow from the Wasatch Range support populations of rainbow, cutthroat, and brook trout in their upper reaches. Brown trout are found in most streams that pass through the valley. The fisheries in the lower reaches of these streams are affected by exchanges with Utah Lake water and support populations of brown trout, carp, Utah sucker, mountain sucker, longnose dace and Utah chub. The section of the Jordan River between the county line and 90th South supports the greatest variety of game fish. Rainbow trout, brown trout, channel catfish, black bullhead, white bass, green sunfish, walleye, carp, and Utah sucker can all be found in this section. Downstream of 90th South, the fishery is dominated by warm water, sediment tolerant species such as carp and Utah sucker.

14.2.2 Wildlife Habitat

The Jordan River and its tributaries support riparian and wetland plant communities that offer critical habitat for wildlife. Although the width of these riparian zones is often greatly restricted through the valley due to development of adjacent upland areas, certain stream reaches can provide abundant food, cover, water and other special habitat requirements for wildlife. Wildlife use riparian zones disproportionately more than any other habitat type. Consequently, these areas are the most important wildlife habitat resource remaining along the Wasatch Front.

Habitat can be classified according to value. The four categories of habitat used in Utah are critical, high priority, substantial-value and limited-value. Mitigation goals vary with habitat value, wildlife species and project plans. Several approaches to mitigation are available. In their order of importance they are:

- Avoid the impact altogether by not taking a certain action.
- Minimize impacts by limiting the magnitude of an action or its implementation.
- Rectify the impact by repairing, rehabilitating or restoring the affected environment.
- Compensate for the impact by replacing or providing substitute resources or environment within the same area.

14.2.3 Waterfowl Habitat

Almost continuous preserved wetlands are along the east side of the Great Salt Lake from Saltair Resort to the Antelope Island causeway, containing a state waterfowl management area, private duck clubs, Audubon and Nature Conservancy preserves, and wetland mitigation sites These wetlands together form an ecological system of which the Jordan River Basin's 32,696 acres of developed managed wetlands are the major part, including 13 private duck clubs involving 16,791 acres. Many of these wetlands have been engineered or continually enhanced over the last 100 years, and these improvements are actively managed for wetland and wildlife values.

14.3 Organizations and Regulations

The Division of Wildlife Resources has responsibility for the management, protection, propagation and conservation of the state's wildlife resources. Some federal agencies have limited authority for wildlife management on lands they administer. The U.S. Fish and Wildlife Service has authority over management of threatened and endangered species on all lands.

14.3.1 Local

Although the county and local cities and towns do not have agencies specifically set up to perform wildlife and environmental roles, most have

demonstrated a growing interest to include these issues as part of their planning process. The following are examples of wildlife and environmental planning performed at the local level. The Central Valley Water Reclamation District contracted in 1988 with a consultant to conduct a four-year fishery study of the Jordan River in Salt Lake County. The primary objective was to monitor fish populations at several sampling stations established on the Jordan River, and determine if fish (especially game fish) abundance was related to differences in physical habitat or water quality. Four stations on the Jordan River were sampled: above Mill Creek (approximately 3300 South), below Mill Creek, 1700 South and 1000 North. Stations on the Surplus and Goggin canals were also sampled. From 1988 to 1991, 24 species of fish belonging to nine families were captured in the Jordan River. Carp, Utah sucker and fathead minnow were the most abundant species. Walleye, White Bass and Green Sunfish were the most common game fish. The study showed that fish abundance in the Jordan River is limited more by physical habitat than by water quality. Overall catch rates were highest where riprap covered the banks. Game fish appeared to prefer man-made structures and riprap cover types. The study concluded that until physical habitat is improved, assessing the effects of water quality on fish populations in the river will be difficult.

The preference of the game fish for manmade structures and rip-rapped areas is quite likely an indication of the natural channels degraded condition. The Jordan River has been straightened and channelized for much of its length. Much of the Jordan River channelization took place in the 1950s as a part of that era's efforts to stabilize the river. Since the 1950s, however, much has been learned about the dynamics of rivers and streams. Today's preferred approach is to work more closely with the river's natural sinuosity and meander patterns. A *1992 Jordan River Stability Study* conducted for Salt Lake County listed among the major findings and recommendations:

> "The channel stabilization work performed in the 1950s between 2100 South and 14600 South contributed to many of the river's existing stability problems. The channel slope increase induced by this channel straightening resulted in increased flow velocities and caused higher sediment transport rates. These factors acted to de-stabilize the channel bed and cause accelerated bank and bed erosion."

The Jordan River Stability Study recommends a river management plan that stresses non-structural management techniques, such as zoning restrictions and control of land use within the defined river meander corridor. Structural elements of the plan are intended to be used to enhance the natural on-going fluvial processes and re-establish a more natural channel pattern as well as protect existing development from erosion. Along with improving bank stability, erosion control and water quality, this approach should have a positive impact on fishery and wildlife habitat.

14.3.2 State

The Division of Wildlife Resources has general responsibility for the protection and management of fish and wildlife. Prior to 1973, wildlife management in Utah was almost entirely directed toward game species. The Division of Wildlife Resources began a non-game wildlife program in 1973. Early focus was on raising funds for research and management. The State Legislature funded a non-game biologist position in 1975, and Utah became the first western state and only the 17th state in the nation with a non-game specialist. The present urban wildlife program has grown out of these non-game activities.

The Division of Wildlife Resources has the lead role in determining potential impacts (positive and negative) to wildlife resources from water development projects. The role of the Division of Wildlife Resources in water planning is to:

1. Assess water development plans and specifically:
    a. Identify potential benefits to wildlife and their habitats,
    b. Identify potential adverse impacts to wildlife and their habitats,
    c. Recommend a course of action to mitigate project impacts to wildlife and their habitat for the public interest, and
    d. Recommend termination if mitigation is infeasible or not possible.
2. Provide factual information to decision makers regarding consequences of unmitigated and mitigated impacts to wildlife resources.

The Division of Wildlife Resources has prepared a *Wildlife Habitat Conservation Plan* to guide the actions of citizens, elected officials and state's governmental agencies. The proposed plan was prepared from satellite photographs of existing vegetation and land use patterns in the county. These images were processed by computer and field checked for accuracy. The habitat value of each area or "patch" was evaluated according to established criteria. The criteria used to determine habitat value included the size of vegetated patches, diversity of vegetation, level of disturbance, presence or proximity of water, and known use of the patch by wildlife.

The State Division of Forestry, Fire and State Lands also manages scattered tracts of land in the basin, some of which support fish and wildlife populations.

14.3.3 Federal

Primary federal responsibility for the protection and management of fish and wildlife populations rests with the U.S. Fish and Wildlife Service. The agency administers the requirements of federal acts relating to fish and wildlife, such as the Endangered Species Act of 1973.

Some of the basin's fish and wildlife are within national forest and public domain land managed by the Forest Service and Bureau of Land Management. These areas cover 94,800 acres or about 18 percent of the Jordan River Basin (See Figure 3-3).

14.4 Problems and Needs

Many people are attracted to live and play in this area because of the unique year-round attractions and facilities. This results in more pressure on the environment as a whole as well as the water resources in particular. Growing population in the valley increases pressure to develop lands currently serving as wildlife habitat. Most of the canyons are heavily used in both the summer and the winter for a variety of recreational activities. Many homes and businesses have been and are still being constructed in Emigration, Parley's, Big Cottonwood and Little Cottonwood canyons. These activities put a tremendous strain upon the environment and natural resources. There is also growing pressure to further develop areas in the Jordan River flood plain as well as along the many tributary streams. These areas represent the county's most valuable open spaces and wildlife habitat.

Conflicts will increase in the future due to the finite water resources and an expanding population. Some groups advocate preserving the resources from all development, while others rely upon the development of the resources for livelihood.

14.4.1 Minimum Flows

No minimum flow requirements have been established for the Jordan River. In general the flow in the Jordan River has been maintained in large part because of water rights held by public and private waterfowl management areas in the Jordan River Delta, but also because of irrigation return flows, and natural reach gains. The one section of river from Utah Lake to around 12300 South has been least affected by encroachment and channelization, but suffers from dewatering in the winter. Also, no minimum flows have been established for the Jordan River's tributary streams.

Water shortages create problems for the managed wetland areas by promoting disease epidemics and the intrusion of undesired plants. To maintain a healthy marshland, a spring flush is needed to wash out toxins and provide salinity control.

14.4.2 Reservoir Operations

Typically, releases from reservoirs are patterned after the reservoir owner's need. This has meant water is released from Utah Lake to meet irrigation schedules while water is released from Little Dell and Mountain Dell and the other small holding ponds in the Wasatch Range to meet culinary water needs.

14.4.3 Stream Channel Operations

Diversions of water for municipal and irrigation uses reduces the flow needed for fish habitat. In the winter, when no releases are made from Utah Lake, extreme low flow (or no flow) conditions exist and limit fish habitat from Utah Lake through Bluffdale. Most of the flow in the lower river during the fall and summer is poor quality return flows from irrigation or improved quality from sewage treatment facilities.

14.4.4 Wetlands and Riparian areas

Many of the valley wetlands and riparian areas have already been lost or impacted due to development over the past century and a half. Wetlands and riparian areas are important wildlife

habitats for many species. Such areas generally offer all four major habitat components: food, water, cover and living space. Where there is adequate water and deep soils, production of plant and animal biomass increases.

Only 2,000 acres of wetlands remain along the undeveloped reaches of the Jordan River between the Salt Lake County line and 2100 South. Pressure exists to develop along the Jordan River corridor, and it will undoubtedly increase in the coming years. The sensitivity and scarcity of wetlands, combined with the values and functions they provide (such as flood control, improved water quality and enhanced wildlife habitat), reflect the need for increased protection, conservation, management and restoration efforts by local, state and federal agencies. Improper development in the Jordan River corridor will result in loss of critical flood storage, increased nutrient and pollutant loading, loss of fish and wildlife habitat, and loss of recreational opportunities.

14.4.5 Fish Habitat

The primary cause of fish habitat loss in the Jordan River has been flood control practices such as dredging and straightening the river channel. Since the time of settlement, the Jordan River has been transformed from a richly diverse meandering river to essentially a uniform bottomed trapezoidal channel resulting in high uniform velocities and little cover for fish and other wildlife. Effects of channelization on stream communities, including fish, macroinvertabrates and riparian habitat, have proven to be extremely detrimental and long term. Channelized sections of the Jordan River are dominated by warm water, sediment tolerant fish such as carp and suckers that are not typically favored by local anglers. Less disturbed river sections support desirable game fishes such as trout, walleye, perch and bass. Recent changes in flood control philosophies along the Jordan River may provide opportunities for improving fish habitat in the future; but until floodplain encroachment by development is curbed, requests to dredge and straighten will continue.

14.5 Alternative Solutions or Actions

Water is an important part of nature in the city. In urban areas, water is often piped underground or diverted into concrete channels. A better alternative would be to determine where runoff water can be brought into open spaces. Designing on-site water drainage and retention can supply water to plant and animal life, at the same time decreasing the demand on drainage systems.

14.5.1 Central Utah Project Completion Act

Title III of the Central Utah Project Completion Act authorizes $145 million for specific environmental mitigation, conservation and recreation projects. More than $9 million dollars has been specified for wildlife mitigation issues and recreation facilities along the Jordan River. An additional $14 million has been designated to preserve, rehabilitate and enhance wetland areas around the Great Salt Lake. The improvements along the Jordan River corridor are intended to preserve fish and wildlife habitat and other functional wetland values and enhance urban wildlife recreational opportunities. The specified Jordan River Projects are:

Improve fish habitat - $1,150,000
Improve riparian habitat - $750,000
Acquire wetlands - $7,000,000
Jordan Parkway recreation - $500,000

14.5.2 Jordan River Meander Corridor

Salt Lake County passed an ordinance in 1944 that established a Jordan River Meander Corridor. The ordinance established the boundaries of the Jordan River's natural meander pattern, and sets limits on the types of development and land uses that can occur within the designated corridor. This effort follows closely on the heels of the county *Jordan River Stability Study*, published in December 1992. That study defined the Jordan River as "...continually undergoing the processes of bank erosion, long-term channel bed degradation, bridge scour, sediment deposition and meander migration." In addition to reducing the flooding potential along the river, the establishment of a meander corridor should have a very positive impact upon wildlife and the environment, as the river is allowed to take a more natural sinuous course and the stream banks are allowed to stabilize.

Many of the cities that border the Jordan River (Salt Lake City, Midvale, West Jordan, West Valley City, South Jordan, Riverton and Bluffdale), are developing their own management plans for the Jordan River within their city boundaries. Many of these city plans reflect the county's efforts to establish

a meander corridor and include the establishment of parkways and trails.

14.6 Issues and Recommendations

14.6.1 Wetlands and Riparian Habitat

Issue - Existing wetlands and riparian habitat are being lost or impacted due to development.

Discussion - The Jordan river Basin has about 28,100 acres of wetlands and riparian areas. The majority is contiguous with the Jordan River or its tributaries. Riparian areas include land directly influenced by sufficient water to sustain growth. Even though the wetlands/riparian areas account for a minor part of the total land area in the basin, the vast majority of wildlife species are associated with them at some point in their life cycle. As such, they are important areas to wildlife. When riparian areas are in good condition, they provide stream bank stability, maintain channel contours, regulate water flow and enhance water quality. A good riparian community has abundant and diverse plant life covering most of the soil and showing a spread in age distribution. Where spring areas have been impacted by wildlife and livestock, rehabilitation should be investigated and pursued.

Recommendation - The Division of Wildlife Resources should identify wetlands and riparian areas with significant values to aid in their protection and preservation. ■